

WHAT IS CLAIMED IS:

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1. An oxygen supply apparatus which supplies oxygen or oxygen-enriched gas to a user having a breathing cycle including an inhalation period and an exhalation period synchronously with breathing of the user by means of a breath synchronization function, which comprises:
 - 5 a sensor for detecting the state of breathing of the user,
 - means for judging the state of breathing of the user under a predetermined judgment condition when breath-synchronized operation is performed, based on a signal from the sensor; and
 - means for supplying the oxygen or oxygen-enriched gas to the user
- 10 over a predetermined period when the state of breathing of the user cannot be accurately determined.
2. The oxygen supply apparatus as claimed in claim 1, which comprises an oxygen cylinder filled with oxygen, or an oxygen enriching apparatus which enriches oxygen contained in air.
3. The oxygen supply apparatus as claimed in claim 2, wherein the predetermined judgment condition is such that a period during which the state of breathing of the user cannot be accurately determined is a period corresponding to a breathing rate of 7 times/min or less.
4. The oxygen supply apparatus as claimed in claim 3, wherein the predetermined judgment condition is such that a period during which the

state of breathing of the user cannot be accurately determined is 8 seconds or more.

5. The oxygen supply apparatus as claimed in claim 1, wherein the predetermined period is a time corresponding to 25 to 40% the length of each breathing cycle at a time when the breathing rate is 5 to 7 times/min.

6. The oxygen supply apparatus as claimed in claim 1, wherein the sensor is disposed at an oxygen outlet to which oxygen or oxygen-enriched gas is supplied and is adapted to detect the state of a gas at that position.

7. The oxygen supply apparatus as claimed in claim 1, wherein the sensor is disposed at a breath detection port provided separately from an oxygen outlet to which oxygen or oxygen-enriched gas is supplied, and is adapted to detect the state of a gas at that position.

8. The oxygen supply apparatus as claimed in claim 1, wherein the sensor is a pressure sensor, a strain gauge sensor, or a piezoelectric sensor.

9. The oxygen supply apparatus as claimed in claim 1, wherein the oxygen supply apparatus is an oxygen enriching apparatus;

when the breath-synchronized operation is not performed, the oxygen enriching apparatus supplies the oxygen-enriched gas at a flow rate equal to or

5 less than a continuous base flow rate, which represents a flow rate at which the oxygen enriching apparatus can supply the oxygen-enriched gas continuously; and

10 when the breath-synchronized operation is performed, the oxygen enriching apparatus supplies the oxygen-enriched gas during the inhalation period of a breathing cycle at a flow rate greater than the continuous base flow rate and stops supply of the oxygen-enriched gas during the exhalation period of the breathing cycle.

10. The oxygen supply apparatus as claimed in claim 1, wherein the oxygen supply apparatus is an oxygen enriching apparatus; and

5 when the breath-synchronized operation is performed, the oxygen enriching apparatus supplies the oxygen-enriched gas during the inhalation period of a breathing cycle at a flow rate greater than a continuous base flow rate, which represents a flow rate at which the oxygen enriching apparatus can supply the oxygen-enriched gas continuously, and supplies the oxygen-enriched gas during the exhalation period of a breathing cycle at a flow rate less than the continuous base flow rate.

11. The oxygen supply apparatus as claimed in claim 10, wherein when the breath-synchronized operation is not performed, the oxygen enriching apparatus supplies the oxygen-enriched gas at a flow rate equal to or less than the continuous base flow rate, which represents a flow rate at which *5* the oxygen enriching apparatus can supply the oxygen-enriched gas continuously.

12. The oxygen supply apparatus as claimed in claim 9, wherein the continuous base flow rate is 4 liters/min or less.

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13. The oxygen supply apparatus as claimed in claim 10, wherein the continuous base flow rate is 4 liters/min or less.

14. The oxygen supply apparatus as claimed in claim 11, wherein the continuous base flow rate is 4 liters/min or less.

15. A controller for controlling operation of the oxygen supply apparatus claimed in claim 1.

16. A recording medium having recorded thereon means for executing the function of the controller claimed in claim 15.

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